

Amendments to the Specification:

Please replace the paragraph beginning at page 4, line 19, with the following amended paragraph:

According to an embodiment of the invention, the CPU 12 divides the image data into segments, as shown in Figs. 3A and 3B. More particularly, the CPU 12 receives the image data for the original image 24 shown in Fig. 3A, and identifies the beginning and ending locations of image segments A1-An, as shown in Fig. 3B. The image segments may or may not be arranged to overlap. In the present example, the CPU 12 and the co-processors 18 perform conventional image processing of the image segments A1-An as illustrated in Fig. 4, such as color interpolation in step S1, white balance in step S2, etc., and conversion of the data to a particular format in step Sn-1 such as the JPEG format. Finally, the image segments are stored on the storage medium 20 in step Sn. The image segments are processed through the image processing pipeline. As the processed image segments arrive at the storage medium 20, they are stored. The device 100 may also be arranged to perform some image processing before the image is segmented (e.g., excess noise or color separation added to be eliminated on stitching, as discussed below).

Please replace the paragraph beginning at page 6, line 4 with the following amended paragraph:

An example of the pipeline processing of the image segments is illustrated in Fig. 5. The image data may be supplied to the cache 21, which stores the image data as segments A1, A2, A3 and A4, for example. The cache 21 may store a table that includes the starting and ending locations for each of the data segments of the image data. The image data from the cache 21 is supplied to the image processing pipeline at pipeline stage 1 28. Image processing then begins on the first data segment A1. Data segment A1 is transferred from pipeline stage 1 28 to pipeline stage n 32 through processing stage 2 28 and any intervening pipeline stages to complete image processing of data segment A1. Data segment A1 may then be stored on the storage medium 20. Similar processing occurs for each of the remaining data segments A2, A3 and A4. Data segment A1 may be stored onto the storage medium 20 while image processing continues on other data segments of the image data.

Therefore, according to the present invention, image processing may be occurring concurrently with writing a data segment to the storage medium 20. The pipeline processing of the data segments increases the processing speed of the digital imaging device 100. More particularly, this pipeline processing of the data segments reduces the time from obtaining the image at the image sensor 10 to the time when the image data is available to begin storing on the storage medium 20.

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Please replace the paragraph beginning at page 6, line 23 with the following amended paragraph:

The image data may also be supplied from pipeline stage n 32 to a screen 36 or a personal computer (PC) 34, or any other appropriate device. In addition, those of ordinary skill in the art will appreciate that the device 100 may include buffers to facilitate the pipeline processing operation.

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Please replace the paragraph beginning at page 6, line 27 with the following amended paragraph:

According to another aspect of the present invention, some or all of the image processing pipeline stages may be separated to perform parallel processing of the image data segments, as shown in Fig. 6. In this example, one of the pipeline stages, pipeline stage 3 is separated into parallel pipeline stages 3A 31A and 3B 31B. In this arrangement, different data segments of the image are processed in parallel in pipeline stages 3A 31A and pipeline stage 3B 31B. One of ordinary skill in the art will appreciate than that any one or a number of the image processing pipeline stages may be separated into a plurality of parallel stages to decrease overall processing time. The device 100 may include buffers to facilitate the processing operation. For example, if a pipeline stage is divided into multiple parallel processing stages, and the device 100 allows processed segments to be output out of order, a buffer may be provided to enable appropriate ordering of the processed data.

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Please replace Abstract of the Disclosure with the following Abstract of the Disclosure:

A method and apparatus is provided for reducing the image acquisition time in a digital imaging device by processing segments of the image through an image processing pipeline and storing the processed image segments. Processing segments of the image allows the

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digital imaging device to write processed data segments to a storage medium while other image segments are being processed. Any portion of the image processing pipeline may be divided to perform parallel processing on the image segments to increase processing speed.